

Maximum rainfall in one hour or less—Continued.

Station.	Maximum fall in—					
	5 min.	Date.	10 min.	Date.	1 hour.	Date.
Indianapolis, Ind.	Inch.		Inch.		Inch.	
Jacksonville, Fla.	0.10	28	0.12	28	0.26	28
Jupiter, Fla.	0.62	6	1.18	6	2.20	6
Kansas City, Mo.	0.40	8	0.60	8, 19	1.10	29
Key West, Fla.	0.02	8	0.03	8	0.08	8
Marquette, Mich.	0.45	20	0.65	20	1.56	20
Memphis, Tenn.	0.10	27	0.16	27	0.25	14
New York, N. Y.	0.01	10	0.02	10	0.08	10
New Orleans, La.	0.16	5	0.27	5	0.75	5
Norfolk, Va.	0.25	6	0.45	6	0.45	6
Philadelphia, Pa.	0.25	5	0.33	5	0.42	5
Philadelphia Water Works	0.10	5	0.19	5	0.77	5
Pittsburg, Pa.	0.15	3	0.30	3	0.56	3
Portland, Oregon	0.05	28	0.06	28	0.25	28
Saint Louis, Mo. †	0.01	27	0.02	27	0.08	27
San Diego, Cal.	0.05	22	0.06	22	0.14	22
San Francisco, Cal.	0.21	26	0.25	26	0.35	26
Savannah, Ga.	0.25	5	0.28	5	0.70	5
Washington, D. C.	0.18	6	0.34	6	0.57	3
Wilmington, N. C.						

* Less than 0.05 in 1 hour. † Register not working.

SNOW (in inches and tenths).

The first snow of the season was reported in the Sierra Nevada Mountains near Keeler, Cal., on the 15th; at Hill City, in the Black Hills, South Dakota, and in the Wahsatch and Oquirrh mountains, Utah, on the 23d; at Cheyenne, Laramie, and Saratoga, Wyo., and Leadville, Colo., on the 24th; at Virginia City, Mont., on the 26th; at Joseph, Oregon, on the 29th; and at Fort Assiniboine, Helena, Choteau, and Boulder, Mont., Fort McKinney and Lander, Wyo., Winnemucca, Nev., Baker City, Lakeview, and Weston, Oregon, American Falls and Henrys Lake, Idaho, Snowville and Beaver, Utah, Carson City, Nev., and in the mountains of east-central California on the 30th.

The heaviest snowfall of the month was reported in the mountains of central Colorado, where 5.0 to 10.0 was reported. A depth of 4.2 was noted at Joseph, Oregon; 1.0 to 4.0 fell at points in central Nevada; and 1.0 to 2.0 at stations in Wyoming, south Idaho, and southwest Montana. At other stations reporting snowfall the amount was less than 0.5.

WINDS.

The prevailing winds in September, 1891, are shown on Chart I by arrows flying with the wind. In New England, along the eastern slope of the Rocky Mountains, and on the middle Pacific coast southwest to northwest winds were most frequently noted; in the middle Atlantic states they were generally from south to west; in the south Atlantic and east Gulf states, the Florida Peninsula, Kentucky, and Tennessee, from north to east; in the west Gulf States, from northeast to southeast; in the Ohio Valley north of the Ohio River, the Lake region, the extreme northwest, the Missouri Valley, and the plateau region, from southeast to southwest; in the upper Mississippi valley, from south to southwest; on the north Pacific coast, from east to south; and on the south Pacific coast from west to northwest.

HIGH WINDS.

[In miles per hour.]

Wind velocities of 50 miles, or more, per hour were reported at regular stations of the Weather Bureau as follows: 17th, 52, s., at Fort Canby, Wash. 18th, 84, nw., at Mount Washington, N. H.; 58, s., at Fort Canby, Wash.; 19th, 54, sw., at Moorhead, Minn. 22d, 50, s., at Huron, S. Dak. 25th, 99, nw., at Mount Washington, N. H. 28th, 72, se., at Fort Canby, Wash. 29th, 63, se., at Huron, S. Dak. 30th, 50, se., at Moorhead, Minn.; 89, nw., at Mount Washington, N. H.; 50, s., at Sioux City, Iowa.

Monthly snowfall was reported as follows: *California*.—Boca, 0.5; Grass Valley, trace. *Colorado*.—Alma, 10; Como (near), 7.7; Platoro, 7; Stamford and Twin Lake, 6; Jefferson, 5.6; Cumbres and Georgetown, 4; Dumont and Red Cliff, trace. *Idaho*.—Henrys Lake, 1; Mullan, trace. *Montana*.—Boulder Valley and Virginia City, 2; Helena, 0.2; Fort Assiniboine and Choteau, trace. *Nevada*.—Eureka, 4; Austin, 1; Reno State University, 0.2; Belmont, Candelaria, Carson City, Ely, Fenelon, Monitors Ranch, Palmetto, and Virginia City, trace. *Oregon*.—Joseph, 4.2; Baker City and Weston, trace. *Utah*.—Snowville, 1; Beaver, trace. *Wyoming*.—Fort Yellowstone, 2.5; Fort Washakie, 2.4; Saratoga, 2; Evans-ton, 1; Cheyenne, 0.4; Sheridan, 0.2; Lander, 0.1; Laramie, trace.

HAIL.

Description of the more severe hail storms reported for the month is given under "Local storms." Hail was reported as follows: 1st, New York, Pennsylvania. 2d, Illinois, Michigan, New Mexico, and Texas. 3d, Louisiana and North Dakota. 5th, New York and West Virginia. 6th, New York. 7th, Colorado, Michigan, and South Dakota. 8th, Colorado, Michigan, and Oklahoma Territory. 9th, Colorado, Michigan, Montana, and Nevada. 10th, Colorado, Michigan, Mississippi, Nevada, Utah, Wyoming. 11th, Iowa. 12th, Colorado, and New York. 13th, California, Wisconsin. 14th, Maine, Michigan, Minnesota, North Dakota, Texas, and Wisconsin. 15th, California, Indiana, Michigan, New York, Pennsylvania, and Wyoming. 17th, Massachusetts. 18th, Colorado, Maine, Michigan, New Mexico, Vermont, and Washington. 19th, Minnesota, North Dakota, Virginia, and Washington. 20th, North and South Dakota. 22d, Colorado and Washington. 23d, Colorado, Nebraska, and Utah. 24th, Nebraska and New Mexico. 25th, Colorado, New Jersey, and New Mexico. 27th, South Dakota. 28th, Minnesota and South Dakota. 29th, Arizona, Indiana, and Oregon. 30th, Colorado, Nevada, New Mexico, and Oregon.

SLEET.

Sleet was reported as follows: Colorado, 10th and 20th; Mount Washington, N. H., 14th and 15th; and Cheyenne, Wyo., 24th.

LOCAL STORMS.

2d.—During a thunderstorm in the afternoon at Mobile, Ala., minor damage was caused by lightning. An unusually severe thunder, wind, and rain storm was reported at East Tawas, Mich., at night. A thunderstorm, with high wind, moved southeast over Concordia, Kans., in the early morning.

3d.—A thunderstorm, with heavy rain, and wind reaching an extreme velocity of 48 miles per hour, occurred at Mobile, Ala., from 5.30 to 7.15 p. m. A thunderstorm, with heavy rain, high wind, and hail, visited Emilie, La., in the afternoon; 1.24 inch of rain fell in 20 minutes, and cane was injured by high wind. At Edgard, La., a hard west-northwest gale prostrated trees and large cane. At Chattanooga, Tenn., a house was struck by lightning.

4th.—Heavy rain fell near San Bernardino and Redlands, Cal., causing a flood at the latter-named place. Rain occurred generally throughout the San Jacinto Valley, Cal.

5th.—A severe wind and rain storm prevailed along the New Jersey coast. An exceptionally heavy rainstorm, with thunder and lightning, continued during the night of the 5-6th at Baltimore, Md., flooding the lower part of the city. Small streams overflowed their banks and flooded low lands in parts of Maryland. A destructive thunder and rain storm was reported at Alliance, Ohio, at night.

6th.—Heavy rain flooded sewers and cellars at New Haven, Conn. A thunderstorm, with excessive rainfall, moved

north over Jacksonville, Fla., in the afternoon; 0.62 inch of rain fell in 5 minutes, and 1.18 in 10 minutes.

7th.—Great damage was caused by high wind along the Nova Scotia coast at night.

8th.—A destructive thunder, wind, and hail storm passed over Oklahoma City, Okla. T., in the evening; 2.64 inches of rain fell in 42 minutes, flooding the town for several hours, and hail fell for 30 minutes, breaking a large quantity of window glass, and destroying crops.

9th.—During a heavy thunderstorm in the early morning at Mesquite, Tex., a barn was struck by lightning and burned; loss about \$2,000.

10th.—An unusually severe thunderstorm, with hail, moved eastward over Levan, Utah, in the evening; hail fell for five minutes; some of the hailstones being one inch in diameter, and 0.50 inch of rain fell in 15 minutes. High northerly wind was reported at Beaver, Utah. A thunderstorm, with excessive rain, occurred at Jacksonville, Fla., in the afternoon; 0.90 inch of rain fell in 10 minutes, and damage was caused to electric wires.

12th.—A thunderstorm, with heavy rain and high wind, occurred at Alpena, Mich., about noon; the wind reached an extreme velocity of 60 miles per hour, and the temperature fell 13°.

During a thunderstorm at Davenport, Iowa, in the morning, lightning struck in several places, and telephone wires were burned out.

13th.—In the early morning a barn at South Dartmouth, Mass., was struck by lightning and burned. A barn was also struck by lightning and burned at Ferrysburgh, Mich. A heavy wind, rain, and hail storm caused great damage about Ashland, Wis.

14th.—A thunderstorm moved southeast over Duluth, Minn., in the morning; hail of an unusual size fell for a few minutes; within 3 minutes the barometer rose and fell .15 inch; lightning struck in several places, doing some damage. Very destructive wind, rain, and hail storms were reported in north Wisconsin.

15th.—During a thunderstorm in the morning at Erie, Pa., the electric car line was disabled, and a barn was struck by lightning and burned.

Near Wellsborough, Pa., hail damaged the tobacco crop, several buildings were struck by lightning and burned, causing a loss of \$15,000 to \$20,000, and a man was reported killed by lightning.

At Keeler, Cal., the wind suddenly veered from south to southwest at 6.50 p. m., and blew at the rate of 49 miles per hour. Heavy storms prevailed in the Sierra Nevada Mountains to the southwest, in the Coso Range, and extended nearly across Owens Lake. Heavy rainstorms were reported along the Carson and Colorado Railway. A thunderstorm passed over Keeler in the evening. The first snow of the season fell in the higher Sierra Nevada Mountains.

At Fresno, Cal., a dust and sand storm occurred at 5 p. m. Heavy drops of rain, with some hail, fell for 10 minutes from 5.10 p. m., when a brisk northwest wind began, and the rain moved down the valley.

16th.—At Sault de Ste. Marie, Mich., a heavy thunderstorm from the southwest began 9.55 a. m. and ended 11.30 a. m. At 11.30 a. m. the wind suddenly increased to 20 miles per hour and reached an extreme velocity of 58 miles at 11.47 a. m. Masters of vessels reported the squall one of the most severe ever experienced in that region, many of them losing all loose articles on deck. During the storm the water in the canal and rapids fell 3 feet, leaving steam barges and other craft aground until 2.35 p. m.

During a thunderstorm in the evening at Berlin, Tex., a house was struck by lightning.

17th.—Severe wind and thunder storms were reported on the east shore of Massachusetts at night. A high northeast wind prevailed at Key West, Fla., reaching a velocity of 30

miles per hour at 10.20 a. m. The wind continued high until the morning of the 18th.

At Napoleon, N. Dak., a heavy gale, with thunder and rain, occurred in the early morning. During a high wind at Seattle, Wash., several buildings were blown down, and a man was reported killed.

18th.—An unusually severe thunder, hail, and rain storm visited parts of Maine at night, and at a number of places buildings were struck by lightning and burned. At Groveton, N. H., a large black cloud approached from the northwest about 4 p. m., attended by high wind and heavy rain; several buildings were moved from their foundations, the damage being estimated at \$1,000. A destructive storm was reported at Lancaster, N. H.

At Lunenburg, Vt., the wind reached a velocity of about 75 miles per hour for 10 to 15 minutes from 4 p. m., blowing down trees, etc. The storm-path was reported about 4 miles in width and 20 miles in length; some hail fell at the beginning of the gale.

A thunderstorm, with strong northwest wind and heavy rain, passed over Hartland, Vt., in the evening. At Northfield, Vt., a barn was struck by lightning and burned.

At Key West, Fla., there were evidences of a cyclonic disturbance to the southward. In the morning there were squalls of rain, and the barometer fell .11 inch from 11 a. m. to 4.30 p. m.

At Thornville, Mich., a barn was struck by lightning and burned. Heavy rain flooded farms in southwest Waukesha county, Wis.

19th.—Heavy storms occurred in west Minnesota and the east part of the Dakotas. High southerly winds prevailed at Moorhead, Minn., in the afternoon. About 4 p. m. heavy cumulus clouds gathered in the southwest. The storm advanced from the southwest with but one peal of thunder at 6.05 p. m., and moved to the north after passing the station, and at 6.25 p. m. it moved back towards the south, with very heavy rain and hail for 10 minutes. The hailstones were of unusual size. The wind reached a velocity of 54 miles per hour. In the north part of Deuel county, S. Dak., and in Lac-qui-Parle county, Minn., a number of buildings were blown down or unroofed by high wind.

20th.—A gale of destructive violence was reported on the Labrador coast. During a thunderstorm in the morning at Key West, Fla., 0.45 inch of rain fell in 5 minutes, 0.65 in 10 minutes, and 1.65 inch in one hour. Heavy rain and high wind prevailed over south Louisiana. At Luling, La., 9.32 inches of rain fell in 4 hours and 10 minutes. At New Orleans, La., the wind reached 48 miles per hour from the northeast in the evening and continued strong until the morning of the 21st. Rain fell heavily, with thunder and lightning, and continued until after midnight.

23d.—A severe wind and rain storm, attended in some localities by hail, caused damage to buildings, etc., in Scotts Bluff county, Nebr., in the afternoon.

24th.—Heavy rain caused washouts on railroads about Santa Fé, N. Mex.

27th.—A heavy thunder, wind, and hail storm caused considerable damage about Webster, S. Dak. A severe windstorm was reported in Bellramie and Itaska counties, Minn.

28-29th.—At Sault de Ste. Marie, Mich., high wind, reaching a maximum velocity of 41 miles per hour from the northwest, compelled all up-bound boats to anchor; several boats were blown aground. Severe westerly gales prevailed over the north part of the Lake region.

At Winnebago, Ill., a barn was struck by lightning and burned on the 28th.

29th.—A thunderstorm, with exceptionally heavy rain, occurred at Elizabeth, Ark., in the morning; the ground was covered to a depth of several inches with water, and cotton and other crops were damaged. Sandstorms were reported in the valleys of southern California, southern Nevada, and Arizona on the 29th and 30th.